
Land & Air & Water

Number 3



**Kentucky Natural Resources
and
Environmental Protection
Cabinet**

James E. Bickford
Secretary

Bruce Williams
Deputy Secretary

Commissioners

Robert Logan
Department for Environmental
Protection

Hugh Archer
Department for Natural Resources

Carl E. Campbell
Department for Surface Mining
Reclamation and Enforcement

Barbara A. Foster
General Counsel

Paul E. Patton, Governor

Editor: **Cindy Schafer**
Editorial assistants: **Heather Frederick**
Julie B. Smither

Agency coordinators:
Martin Bess, Maleva Chamberlain,
Lillie Cox, Sue Ann Elliston, Stan
Henize, Gwen Holt, Karen Landry, Gail
McGee, Scott Richards, Lee Ruggles,
R.C. Story and Anya Armes Weber

Land, Air & Water is published quarterly by the Natural Resources and Environmental Protection Cabinet with state and federal funds. Subscription to this publication is free. Write the Public Information and Education Branch, 4th Floor, Capital Plaza Tower, Frankfort, Ky. 40601 or phone (502) 564-5525 to have your name added to the mailing list. Address changes and deletions also should be sent to this office or faxed to (502) 564-2043.

State nature preserve provides many attractions

By Paul Quinlan
Kentucky State Nature Preserves Commission

Just 20 minutes from Lexington, there is a unique treasure on the edge of the Bluegrass region. The Kentucky River carves a deep canyon through ancient rock, forming towering cliffs referred to as palisades. It is here that the Tom Dorman State Nature Preserve (formerly known as the Kentucky River Authority Palisades) protects 356 acres of upland and bottomland hardwood forest and spectacular 220-foot palisades along the Kentucky River in Garrard and Jessamine counties. The dramatic topography of the area provides habitats that are quite different from those found in the surrounding uplands of the Bluegrass region. Several rare plants are located in the thin soils on the limestone cliffs including Starry cleft phlox (*Phlox bifida ssp. stellaria*) and Eggleston's violet (*Viola septemloba var. egglestonii*). More common plants also occur such as Carolina pink (*Silene caroliniana*) that is pictured on the front cover. It grows in open conditions at the base of cliffs.

A hiking trail on the Garrard County side of the river leads from successional old fields through a forest of oaks, hickories, maples and buckeyes, down to the river where the remains of an old homesite are located. The steep, wooded slopes are extremely rich in spring wildflowers, such as Wild ginger (*Asarum canadense*), Dwarf larkspur (*Delphinium tricornis*) and Squirrel corn (*Dicentra canadensis*). The diverse mixture of tree species provides beautiful fall foliage displays. After brief glimpses of the cliff walls through the woods, a breathtaking view of the palisades on the Jessamine County side is gained from the floodplain below. The best views are in the fall, winter and early spring.

The preserve is open year-round from dawn to dusk. From Nicholasville, take U.S. 27 south. After crossing the Kentucky River into Garrard County, turn right on State Route 1845. Turn right at the road next to Lambert's Chapel. Follow the road for approximately 3/4 mile (go straight, do not take the fork to the left) to the gravel parking lot at the end of the road.

Mark Your Calendar

The Governor's Conference on the Environment will be held Nov. 9-10, 1999, at Jenny Wiley State Resort Park in Prestonsburg. See Page 11 for more details.

**Land
& Water Online**

Visit *Land, Air & Water* magazine on the World Wide Web at www.nr.state.ky.us/nrepc/landairwater.htm

The Natural Resources and Environmental Protection Cabinet does not discriminate on the basis of race, color, national origin, sex, age, religion, or disability and provides, on request, reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs and activities. To request materials in an alternative format, contact the Public Information and Education Branch, 4th Floor, Capital Plaza Tower, Frankfort, Ky. 40601 or call (502) 564-5525. Hearing- and speech-impaired persons can contact the agency by using the Kentucky Relay Service, a toll-free telecommunication device for the deaf (TDD). For voice to TDD, call (800) 648-6057. For TDD to voice, call (800) 648-6056.

Printed on recycled paper with state and federal funds

what's inside

Fall 1999

Features

<i>State Nature Preserve</i>	
<i>provides many attractions</i>	<i>Inside cover</i>
<i>Massive cleanup job aims to erase the past</i>	<i>1</i>
<i>Call for poster contest participants in 2000</i>	<i>2</i>
<i>"Wildlife: Sharing Our Common Wealth" - 1998 Conservation</i>	
<i>Essay Contest winner</i>	<i>7</i>
<i>Black Mountain and Blanton Forest: Long sought</i>	
<i>protection moving forward</i>	<i>9-10</i>
<i>Governor's Conference scheduled for Nov. 9-10</i>	<i>11</i>

Contents

Department for Natural Resources

<i>Kentucky Division of Energy works to bring national energy</i>	
<i>initiatives to the state</i>	<i>3</i>
<i>Energy Savings Performance Contracting Workshop</i>	
<i>scheduled for Nov. 16-17</i>	<i>3</i>
<i>Soil conservation is topic of 1999 contests</i>	<i>4</i>
<i>National Cooperative Soil Program turns 100</i>	<i>5</i>
<i>1998 Jim Claypool Conservation Poster Contest winner</i>	<i>5</i>
<i>Division employees receive training on KFCA</i>	<i>6</i>
<i>Millions of tree seedlings raised annually</i>	<i>6</i>
<i>Crooked Creek Barrens: Kentucky's newest state nature preserve</i>	<i>8</i>
<i>Annual convention of state conservation districts held</i>	<i>11</i>
<i>Kentucky Division of Forestry seedling order form</i>	<i>20</i>

Department for Environmental Protection

<i>Watershed Process Update</i>	<i>12</i>
<i>What is Watershed Watch?</i>	<i>12</i>
<i>State Revolving Fund loans help municipalities clean up waterways</i>	<i>13</i>
<i>Two projects illustrate advantages of State Revolving Fund</i>	<i>14</i>
<i>Counties profit from abandoned vehicle collection</i>	<i>14</i>
<i>Solid waste coordinators discuss issues at summer workshop</i>	<i>15</i>
<i>Court takes action on EPA requirements</i>	<i>16</i>
<i>America Recycles Day is Nov. 15</i>	<i>16</i>
<i>Patton appointees take oath at Air Quality</i>	
<i>Small Business Panel meeting</i>	<i>17</i>
<i>Lt. Gov. Henry presents Air Quality Stewardship Awards</i>	<i>17</i>
<i>PM_{2.5} sampling well under way</i>	<i>18</i>
<i>School officials learn about asbestos</i>	<i>18</i>
<i>Vehicle emissions testing began Sept. 1</i>	<i>19</i>
<i>Proposed chemical risk management regulations withdrawn</i>	<i>19</i>

Department for Surface Mining Reclamation and Enforcement

<i>"Rocket boxes" provide homes for bats at DSMRE</i>	<i>Back cover</i>
---	-------------------

Cover photos

The cover photos were taken at Tom Dorman State Nature Preserve in Garrard and Jessamine counties. A fall landscape of the palisades, top; Tiger swallowtail butterfly (*Papilio glaucus*), left; and Carolina pink (*Silene caroliniana*), right. See story about the palisades on inside front cover. Photography by Thomas G. Barnes, associate extension professor, Department of Forestry, University of Kentucky.



Massive cleanup job aims to 1
erase the past



Crooked Creek Barrens: 8
Kentucky's newest state nature
preserve



Black Mountain and 9-10
Blanton Forest: Long sought
protection moving forward

Massive cleanup job aims to erase the past

By Heather Frederick
Public Information and Education

One of the biggest messes in the Commonwealth will soon be history. Crews in Eastern Kentucky have begun to clean up what is believed to be the largest illegal dumpsite in the state.

The Auxier Road dump covers nearly a mile of an otherwise beautiful hillside in Floyd County. Dumpers have thrown toys, tires, appliances, household garbage and even a car down the landscape in a local tradition that has gone on for decades.

James E. Bickford, Secretary of the Natural Resources and Environmental Protection Cabinet, announced the cleanup of the dump in a press conference that was attended by local officials and area residents. As Bickford explained, federal and state government agencies have teamed up with private companies to wipe away the massive eyesore.

A company called Enviro-Pro began the cleanup on June 30. In less than a month, crews had already collected more than 370 tons of solid waste. There is no estimate on the total tonnage of waste that will be removed, although Enviro-Pro believes cleanup costs will total at least \$750,000. When the work is complete, the area will be seeded in grass.

Funding for the cleanup comes from \$1 million in restitution that will be paid by the Laurel Ridge Landfill, LLC, a subsidiary of Waste Management. In May, Laurel Ridge Landfill pleaded guilty to misdemeanor violations of the federal Clean Water Act and agreed to perform \$1 million in restitution as a condition of probation. Waste Management is a party to the plea agreement and has guaranteed in court that Laurel Ridge Landfill will comply with the plea agreement. The agreement funding the cleanup would not have been possible without the cooperation of the U.S. Attorney General's office.

The Auxier dump became a target for the cabinet's illegal dumping program in 1997. More than two dozen inspectors dug through trash at the site to determine who dumped the illegal waste. They issued 27 notices of violation, and those responsible for the dumping have been forced to collect about 49 tons of trash.

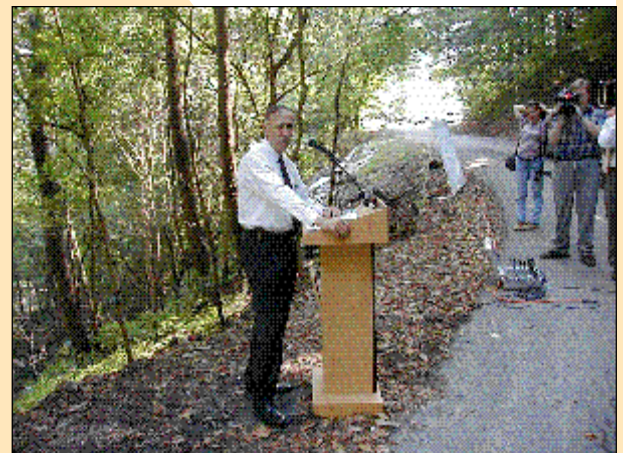
"Once you pick up several tons of trash, including dirty diapers and other unpleasant items, you won't dispose of your garbage illegally again," Bickford said.

He hopes local authorities will keep the area clean by shutting down the road that leads to the dumpsite.

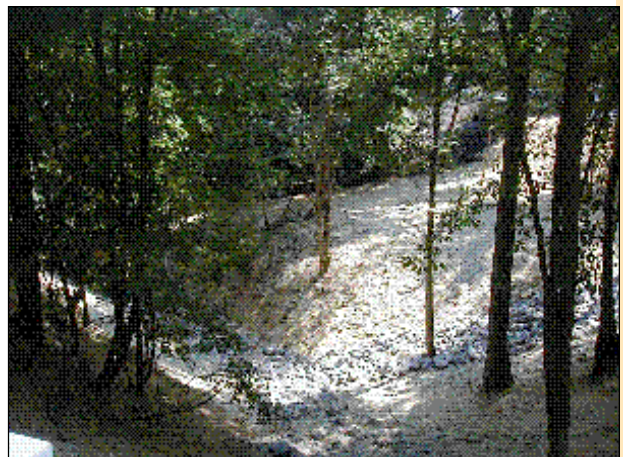
Even a car was
dumped over the
hillside on
Auxier Road.



Auxier Road has been a dumping ground for lumber, mattresses, appliances and much more. Photos by Heather Frederick



Secretary James Bickford addresses reporters and local officials at the news conference announcing the Auxier Road cleanup.



This restored section of Auxier Road has been seeded in grass and covered with straw.

To report illegal dumping, call 888-NO DUMPS.

Call for poster contest participants in 2000

What is “Commonwealth Cleanup Week”?

The 1998 Kentucky General Assembly designated the fourth week in March as Commonwealth Cleanup Week to support efforts to spring clean our wonderful state. The legislature also asked the Kentucky Natural Resources and Environmental Protection Cabinet to coordinate a statewide poster contest to promote Commonwealth Cleanup Week.



Who can participate?

All Kentucky students, public and non-public, in grades 1-8 are eligible to submit a poster which will provide information and/or draw attention to cleaning up our state!

Why should students participate in the poster contest?

Students today will chart the future of Kentucky’s environment. If they learn to respect and protect the beauty of their state, it will endure for generations to come. Every student who makes a poster for the Commonwealth Cleanup is a winner. Once children become involved in preserving Kentucky’s natural resources, they will understand that keeping the Commonwealth clean is its own reward.

Will first-grade students compete against eighth graders?

No. The contest is divided into three grade categories: 1st and 2nd grades; 3rd, 4th and 5th grades; and 6th, 7th and 8th grades.

What are the prizes?

All students who prepare a poster will receive a Certificate of Participation. The top school poster winner in each grade category will receive a T-shirt commemorating Commonwealth Cleanup Week. At the state level, winners in each grade category will receive a \$100 U.S. savings bond and the winning posters will be displayed at the 2000 Governor’s Conference on the Environment. The winning student’s school will receive a \$1,500 grant to be used for an environmental education program.

How can I get more information?

Check out the Commonwealth Cleanup Week web site at <http://www.nr.state.ky.us/nrepc/cabinet/cleanuphome.htm> or contact Anya Armes Weber at (502) 564-6717.



Cardinal artwork by Hallie Carroll
Franklin County High School



This billboard appeared in various locations around the state of Kentucky to promote Commonwealth Cleanup Week. Photo provided by Joy Morgan

Kentucky Division of Energy works to bring national energy initiatives to the state

Each year, the Kentucky Division of Energy (KDOE) has an opportunity to compete for special projects funded by the United States Department of Energy (U.S. DOE) as part of the State Energy Program. The goal of the State Energy Program is to help a state promote and adopt energy efficiency and renewable energy technologies and practices. These state efforts are designed to address national energy priorities that build a stronger economy, improve the environment and ensure a secure future. U.S. DOE special project funding allows the state to implement state-oriented energy projects in the buildings, industrial, transportation and utility sectors. The division competes with other states for funding of projects in these energy sectors.

This year the Kentucky division was awarded \$293,493 in matching grants for the following special projects:

Kentucky Aluminum Technology Roadmap

This \$199,162 grant will allow KDOE to implement U.S. DOE's Industries of the Future initiative to improve the energy efficiency, environmental profile and competitiveness of the U.S. aluminum industry. The aluminum industry contrib-

utes significantly to Kentucky's economy. Therefore, efforts to improve its energy efficiency strengthen the industry's competitiveness in the global marketplace. It is the fifth largest manufacturing industry in the state and employs more than 11,000 people in primary jobs.

The project will focus on research, development and demonstration (RD&D) efforts in the industry during the next two years. The work will be performed under the auspices of KDOE through the newly formed Science and Engineering Center for Aluminum Technology (SECAT) at the University of Kentucky.

Transportation Technologies (two projects)

Funding will be used to establish a compressed natural gas (CNG) refueling facility at the Rohm & Haas Company in Louisville, Kentucky. The Rohm & Haas refueling facility will demonstrate to nearby companies the benefits of using alternative fuels.

Funding for the second transportation technologies project will help support the Central Kentucky Clean Cities program. The U.S. DOE's Clean Cities program is designed to encourage the use of alternative fuel vehicles (AFVs) and their

Stories by Karen Landry
Division of Energy

supporting infrastructure throughout the nation. The program fosters local and national energy security and environmental quality by working with coalitions of local stakeholders to help develop the AFV industry. Through this special project, KDOE hopes to strengthen the market for AFVs and alternative fuels within Kentucky and bring the message of AFV benefits to a wider public audience.

The total grant for these two projects is \$69,482.

Federal Energy Management Program

In this special project, KDOE will train its staff on the federal government's approach to capturing private-sector financing to help improve the energy efficiency of state/federal facilities. With private-sector financing, energy efficiency improvements can be implemented in these facilities using the money saved in energy costs to pay for the projects. The grant for this project is \$24,849.

The grants for these special projects are leveraging at least 100 percent matching funds from the participating organizations. For more information about these projects, contact the Kentucky Division of Energy at (800) 282-0868.

Energy Savings Performance Contracting Workshop scheduled for Nov. 16-17

The Kentucky Division of Energy is cosponsoring a workshop for officials of schools, colleges, hospitals and city/county/state governments on guaranteed Energy Savings Performance Contracting (ESPC). ESPC is a viable way for governments to save energy and money by securing private sector expertise and financing of energy-efficiency improvement projects through the savings these projects are guaranteed to produce.

During the first day, experts from the U.S. Department of Energy's Oak Ridge National Laboratory will cover the ABCs of Energy Savings Performance Contracting. The program will help train administrators and facilities managers on the

basics of ESPCs and procurement of energy service companies.

On the following day, participants will learn important information about Kentucky legislation and policies regarding ESPC. Representatives from state and local government agencies will discuss the status of ESPC in Kentucky. In addition, participants will learn key points in negotiating ESPCs. Financial institutions and energy service companies will discuss their work with ESPCs in the state.

The workshop is in Louisville at the Holiday Inn Hurstbourne. Please call Eddie Riddle at (502) 564-7192 or (800) 282-0868 at the Kentucky Division of Energy for additional information.



Soil conservation is topic of 1999 contests

By Martin Bess
Division of Conservation

Soil Conservation: *Ground for Kentucky's New Millennium* is the subject of the 1999 Conservation Writing and Art Contests sponsored by The Courier-Journal, Kentucky Farm Bureau, Kentucky Association of Conservation Districts and the Kentucky Division of Conservation in cooperation with many state and federal agencies.

The Conservation Essay Contest, now in its 55th year, is for students in the sixth through twelfth grades. The Jim Claypool Conservation Poster Contest, named for the late director of the Kentucky Division of Conservation, is for students in the first through fifth grades. There are four themes: Water Quality, Soil Conservation, Forestry, and Fish and Wildlife. The theme rotates every four years. Last year, there were 108,000 essays and posters completed and every county participated.

A publication titled *Soil Conservation: Ground for Kentucky's New Millennium* contains rules and information about the contests. This publication is presented by Kentucky Farm Bureau companies and

produced by The Courier-Journal for teachers' and students' use in preparing for the conservation contests. These contests allow the students enough freedom in their artwork and writing to meet Kentucky Education Reform Act (KERA) guidelines and lists activities that can be done in the classroom that meet KERA goals. *Soil Conservation: Ground for Kentucky's New Millennium* is a great teaching tool and is available from your local conservation district for the 1999 contests.

The contest dates are Oct. 1 through Nov. 30. Schools select winning entries by late November and send them to conservation district offices, where they are judged at the county level. County winners are then judged at the state level, and two state winners will be recognized at an awards luncheon in Louisville.

State awards include: first-place winners - \$500 U.S. Savings Bond and personalized plaque; second-place winners - \$200 U.S. Savings Bond and personalized plaque; and area awards winners (there are nine Soil & Water Conservation Commission areas in Kentucky) - \$100 U.S. Savings Bond and personalized plaque.

County awards include: first-place winners - \$50 U.S. Savings Bond and certificate; second-place winners - a certificate. School winners receive a certificate of achievement for the best writing entry or artwork in that school. In addition, local conservation districts include their own awards. Prizes will be awarded in every participating county. For more information, contact your local conservation district office or the Division of Conservation at (502) 564-3080.

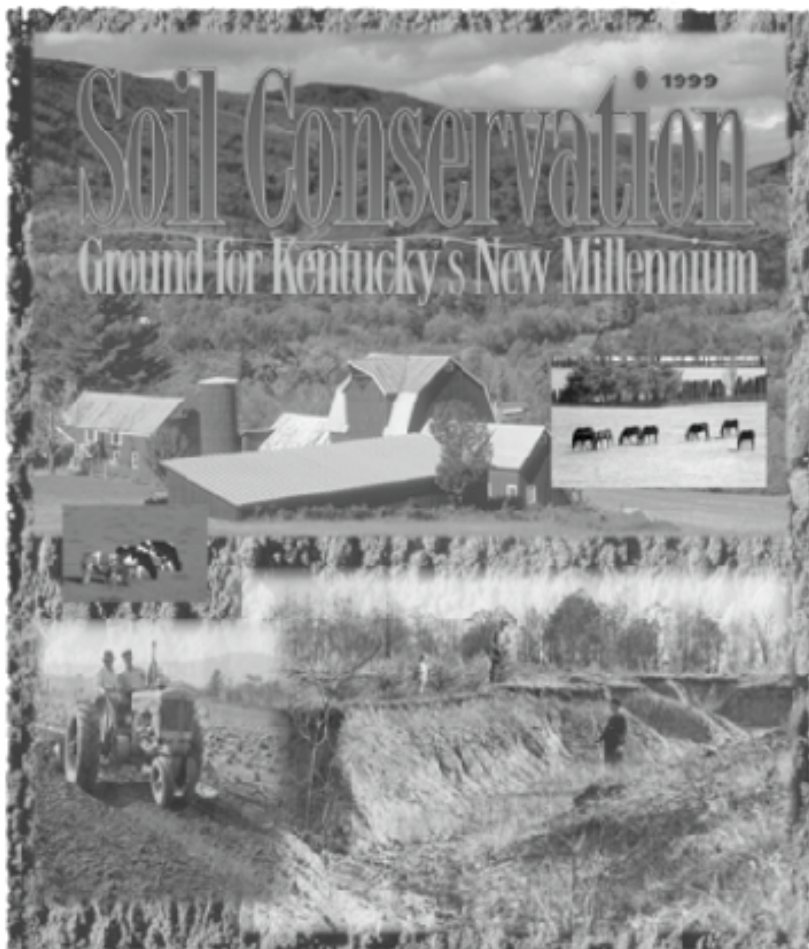
1998 Conservation Writing and Art Contest winners announced

Kentucky Wildlife: Sharing Our Common Wealth was the subject of the 1998 Conservation Essay and Jim Claypool Conservation Poster Contests.

Diedre Carol Davis, a sixth-grade student at Phillips Elementary in Liberty, was the state winner in the essay contest.

Hope Hastings, a fifth-grade student at Campbellsville Middle School in Campbellsville, was the state winner in the poster contest.

See Pages 5 and 7 of this issue of *Land, Air & Water* to view the winning poster and read the winning essay.



Kentucky Farm Bureau Federation
Kentucky Farm Bureau Insurance

The Courier-Journal

Kentucky Association of
Conservation Districts

National Cooperative Soil Program turns 100

By Martin Bess, Division of Conservation

Gov. Paul E. Patton proclaimed April 20, 1999, as Cooperative Soil Survey Program Day. This proclamation was made to observe the 100th anniversary of the National Cooperative Soil Program. Soil surveys were authorized in 1896 by the USDA Appropriations Act. The first soil survey field operations began in the summer of 1899 in Utah, Maryland, New Mexico, Connecticut and Massachusetts. The soil survey program is carried out by the National Cooperative Soil Survey, a nationwide partnership of federal, regional, state and local agencies and institutions. The USDA's Natural Resources Conservation Service is the leader of the federal part of the partnership.

The Kentucky Cooperative Soil Program provides a detailed soil map and database for each county of Kentucky. The program provides a scientific inventory of soil resources, including soil maps, data pertaining to the physical and chemical properties of soils, and information on the potential and limitations of



each soil. Soil surveys are used for many reasons. They ensure that the intended use of the land fits the soil, such as farming for agricultural production. They

are useful in conservation planning, wildlife management and wetlands identification. Soil surveys are also used for the selection of building and home sites, roads, and for waste disposal and pollution control.

The Kentucky Cooperative Soil Survey Program was started 27 years ago. Kentucky is a partner with the USDA Natural Resources Conservation Service, USDA Forest Service, the University of Kentucky, conservation districts and other entities. All counties in Kentucky have been surveyed and mapped. Eighty-nine counties have a modern published soil survey. Mapping is complete in an additional 20 counties, but these counties are awaiting publication of the survey. In addition, published soil surveys in 11 counties are being modernized.

This program allows landowners, land users and policymakers to use the land resource base wisely. Soil surveys are important to farmers, planners, engineers, zoning commissioners, tax commissioners, homeowners and developers.



Hope Hastings
1998 Jim Claypool Conservation Poster
Contest Winner

Photos by David R. Lutman
Special to The Courier-Journal

Division employees receive training on KFCA

Stories by Gwen Holt, Division of Forestry

What are the requirements of the Kentucky Forest Conservation Act (KFCA) and how will they affect loggers and private forest landowners? The two main components that affect loggers and private forest landowners beginning July 15, 2000, are 1) mandatory use of appropriate best management practices (BMPs) during commercial timber harvest operations and 2) the requirement that a master logger be on site and in charge of all



Division of Forestry personnel conduct a mock inspection of a logging site during KFCA training. Photo by Gwen Holt

commercial timber harvesting operations. The KFCA is intended to reduce and prevent non-point source water pollution from commercial timber harvesting operations. The Division of Forestry's efforts to enforce the KFCA will focus on educating loggers and landowners.

The Division of Forestry staff must learn how to inspect timber harvesting operations, what the minimum requirements of each BMP are, and which recommendations to offer to achieve those minimum requirements. They must also know the enforcement process involved when a logger is not in compliance.

The division has been training staff members who will be responsible for implementing the KFCA. Several training sessions have been held across the state. These sessions include an intense three-day inspection and enforcement procedure and protocol training, along with a three-day technical session.

During technical training, staff members travel to active and inactive logging sites to conduct mock inspections. During these inspections, they discuss whether actual or potential water pollution is present. Other topics of discussion include the construction and placement of haul roads and skid trails (trails where logs are dragged out of the forest), the revegetation of these areas, stream crossings, installation of water bars and use of other water erosion control measures. The University of

Kentucky, the Division of Water, the Office of Legal Services and the Division of Conservation have participated in the training.

When these training sessions are completed, the division will conduct additional training in each of its district offices. District training will consist of locating active logging sites, meeting with the landowner and logger, and conducting an unofficial inspection of the site while

discussing the Kentucky Forest Conservation Act. "Our objective is to make our employees competent inspectors as soon as possible," said Mark Matuszewski, director of the Division of Forestry. "We also realize that our employees will become more proficient with every site they inspect. We are new to the regulatory arena and are presently in a period of transition and adjustment."

The KFCA focuses on prevention and education, giving loggers up to four opportunities to correct problems. If after four chances the issues are not resolved, the logger is placed on a "bad actor" list and can be assessed fines for each violation. The "bad actor" list will be available to forest landowners to refer to when hiring a logger for a timber harvest.

What is the private forest landowner's responsibility when contracting to have his property harvested? One, to make sure he is dealing with a master logger; two, to be aware of the required best management practices and include them in the harvesting contract; and three, be aware he shares responsibility and liability for ensuring that the appropriate BMPs are implemented.

Watch for more information about the KFCA. Numerous educational activities will be conducted in upcoming months. For information about the KFCA or other forestry issues, contact the Division of Forestry at (502) 564-4496.

Millions of tree seedlings raised annually

The Kentucky Division of Forestry has been in the tree nursery business since the early 1940s. The first nursery was established at the present location of the state fairgrounds in Louisville. In 1948, nursery operations were moved to the Pennyrile State Nursery near Dawson Springs. Today, the division operates two nurseries: the John P. Rhody Nursery in Gilbertsville, established in 1957, and the Morgan County Nursery in West Liberty, established in 1960.

Tree seedlings are lifted from the seed beds each spring and fall to prepare for shipment.
Division of Forestry photo



Continued on Page 8

Wildlife: Sharing Our Common Wealth

By **Diedre Carol Davis**
1998 Conservation Essay Winner

Would you like to go on a nature study trip? I would like to invite you to go with me to a Kentucky forest. This particular forest is known as "Well-Managed Forest." It is located on a farm and is privately owned.

About 93 percent of Kentucky's 26 million acres is owned by individuals. Private landowners control nearly all of the land where wildlife must find a place to live. They determine whether hunting or any other outdoor activity will be allowed on their property. Don't worry. I got permission for our trip.

Be sure to fasten that gate. Please don't climb on the wire fences or throw any litter on the ground. A true sportsman always respects the landowner's property.

The purpose of our trip is to learn about wildlife habitat in the forest and woodlands. We can help wildlife if we understand what they need and how to provide those needs.

Forests are more than trees. They are a complex community which provides homes and food for wildlife. Forests across the Commonwealth support over 725 different species and over 1,800 different plants. A well-managed forest will provide opportunities for recreation and natural beauty that is breath-taking.

The hard use of our woodlands is affecting Kentucky's fish and wildlife. Nearly 53 percent of the forestland has been cleared. This simply means that wildlife must find another place to live. Their habitats—the places where they live—are threatened. Wildlife must have the same things humans need for survival: food, shelter, clean air and water.

Let's go over to Diamond Back Ridge and down to the head of Wildcat Hollow.

Wow! Look at those straight, towering trees reaching toward the sun. Those long, narrow beams of sunlight look like tiny searchlights filtering through the branches. They are reflecting on the forest floor so clumps of plants can grow. That sound like corn popping is acorns crushing under our feet. Let's go over and sit on that old fallen treetop. We need



Diedre Carol Davis
Photo by David R. Lutman
Special to The Courier-Journal

to be really quiet for a little while.

S-h-h-h! Do you see that ghostly figure approaching that white oak on the creek bank? It looks like it's wearing driftwood on its head. Something dark and shadowy flew down from that tree. It's making a gobbling sound. That's a wild turkey. There's a deer. They are munching happily on some acorns.

Look toward that shagbark hickory. Two gray squirrels are leaping from limb to limb. What an aerial show! Barnum and Bailey couldn't top this. There is music to accompany the show. The melody of birds singing fills the air. Even a chipmunk is chattering a note or two. The forest is coming alive like a Disney movie.

Many wildlife species like to eat at the biggest "restaurants" in town. Trees provide a year-round source of food. In the spring and early summer, many animals such as deer feed on leaves and twigs. The flowers on budding trees provide nectar for bees and food for squirrels.

The most important food source is "mast." This is a term used for seeds, fruit, and nuts trees produce. Seeds and fruits are called soft mast. They are eaten as soon as they ripen and fall to the ground. The seeds of cherry, maple, ash, mulberry, persimmon, cedar, and dogwood are all soft mast.

Hard mast is easy to recognize because it has a hard outer shell. Walnuts, hickory nuts, beechnuts, and acorns are hard mast. Unlike soft mast, hard mast remains edible for several months. It is a vital source of winter food for most forest wildlife. Hey! There goes a chipmunk into that hollow log. I bet he

had a mouthful of acorns. We need lots of mast-producing trees in our forests. The most valuable are the oaks, followed by cherry, dogwood, beech, hickory, and walnuts.

Many soft mast trees begin producing around four years old. Most hard mast trees begin bearing, anywhere from 12 to 40 years, depending on the species.

Once a tree is removed it takes about 40 to 60 years to be replaced. One thing is certain. The decision to cut trees must be done correctly and wisely.

Trees also provide shelter for wildlife. Many species of songbirds, birds of prey, and mammals build nests in trees. Several species of wildlife nest in tree cavities. Hollow trees are important to the survival of wildlife. A good forest management always calls for saving den trees.

Come with me and I'll show you some den trees. We need to cross Bear Track Hollow and up to a point called Buzzard's Bluff.

All of Kentucky's tree squirrels live in cavities. So do barred owls, screech owls, and many species of songbirds. Mammals, bats, mice, and even bears live in hollow trees. Hey! Wait. Come back. There are no bears here now. There used to be.

Because of the high demand for firewood, landowners often remove dead or dying trees. They believe the trees have little value. To a squirrel, raccoon, or screech owl, a "worthless" tree may be the only place to call home.

The owner of this farm cut some firewood from his forestland. He didn't remove all the fallen trees. He left some on the ground to provide shelter for ground-dwelling wildlife. That hollow log over there makes a perfect retreat for a skunk or a great home for a gray fox. That old treetop near the edge of that thicket may make a perfect cover for a ruffed grouse.

I hope the "Well-Managed Forest" helped you get a closer look at the relationship between trees and wildlife. The way you manage your woods will have an effect on wildlife, soil, water, air quality, and the next generation of Kentuckians.

Thanks to the landowner who shared his wealth with us. It's help from the landowners that counts.

Crooked Creek Barrens

Kentucky's newest state nature preserve



Left to right: Clara Wheatley, chair, Kentucky State Nature Preserves Commission; Lewis County Judge-Executive George Plummer; and state Rep. Robin Webb cut the ribbon at the dedication of the nature preserve on June 15. Kentucky State Nature Preserves Commission photo

By Barry Howard
Kentucky State Nature Preserves
Commission

At the June 15 meeting of the Kentucky State Nature Preserves Commission (KSNPC), 60 acres in northwestern Lewis County were set aside as the latest addition to Kentucky's system of state-protected nature preserves. This land, officially dedicated as the Crooked Creek Barrens State Nature Preserve, is part of a larger complex of "barren" areas found nearby, most of which are still privately owned. This type of landscape is exceedingly rare in Kentucky today and KSNPC has hopes of one day expanding this preserve to include additional

high-quality barrens habitat and the rare species that have been found in these areas.

The term "barrens" is used by ecologists to refer to one type of natural community that is *naturally* open and treeless, or contains only scattered trees. Although today there are many agricultural fields and other cleared areas in Kentucky, these are man-made and will remain open only when intensively managed for that purpose. Various types of forests constitute the natural vegetation for most of the land in Kentucky, and if left alone, the vast majority of our open spaces would eventually be covered with trees. Barrens and other naturally open areas such as prairies and glades are influenced by a variety of environmental factors. These include the availability of moisture, types of soils and the presence of a naturally occurring fire regime. Although it is not unusual to find a few isolated and scattered trees within prairies and barrens, these often do not persist over time, especially if the barrens or prairies are subject to periodic burning. Fire is a part of nature and an important tool used by land managers to maintain the barrens that remain in Kentucky today.

Little bluestem (*Andropogon scoparius*) and other native grasses constitute the majority of the naturally occurring vegetation at Crooked Creek Barrens. These areas also contain many broad-leaved herbaceous plants, some of which are very rare in Kentucky. Just last fall, KSNPC employee Dave Skinner discovered Ear-leaved foxglove (*Agalinis auriculata*) growing next to the new preserve. This plant had never before been reported from Kentucky.

Prior to the most recent meeting of KSNPC, commissioners and staff met with citizens from the local community at the new nature preserve for a short dedication ceremony. Lewis County Judge-Executive George Plummer and local state Rep. Robin Webb spoke at this event and helped cut the ribbon.

Crooked Creek Barrens is the 38th site that has been dedicated as part of Kentucky's statewide system of nature preserves. Acquisition of this land was made possible through funding provided by the Kentucky Heritage Land Conservation Fund, which is supported by purchase of the "Naturally Kentucky" license plates. This new preserve brings the total amount of land owned or dedicated by KSNPC to 14,226 acres.

Because KSNPC owns only 60 acres at this site, there are currently no trails at Crooked Creek Barrens, and it is only accessible to the general public through pre-arranged guided tours. There is a possibility that this preserve might be open to the public in future years if KSNPC is successful in acquiring additional land.

Millions of tree seedlings raised annually

Continued from Page 6

The seedlings produced at the division's nurseries are primarily for reforestation. Reforestation is the planting of trees where trees have already been growing (as in a mining or logging operation). Today, forest revegetation has been expanded to include enhancements in water quality, mine reclamation, windbreaks, wildlife habitat and urban forestry situations.

Nursery Superintendent Newton Coop states, "The quality of our forestlands, in large part, begins at the nursery. By supplementing the process of natural regeneration, we can add quality species to enhance the composition of the forest." The state nurseries produce four to five million seedlings per year for sale to the public. By the fall of 2000, the nurseries will be producing nearly seven million seedlings, 80 percent of which will be hardwoods.



In order to meet the demand for seedlings, seed is obtained by a variety of means. This fall, division personnel will be locating and collecting a small portion of the seed needed for the upcoming growing season. The remaining seed will be purchased from commercial vendors and private citizens. Contact your local Division of Forestry district office if you wish to become a seed supplier.

Seedlings are available for purchase each spring and fall. Many species are available, and the prices range from \$15 for 50 to \$80 for 500. The seedlings are shipped via UPS directly to your door. To purchase seedlings, contact the Division of Forestry in Frankfort at (800) 866-0555 or complete the order form on Page 20 in this issue of *Land, Air & Water*.

Black Mountain and Blanton Forest

Long sought protection moving forward

By Hugh Archer, Commissioner
Department for Natural Resources

Protection efforts by state government and private partners have been in the works for many years for these two southeastern treasures. Black Mountain harbors an ecosystem at its highest altitudes that was made a protection priority in the 1970s in the "Known Critical Areas of the Coal-fields" study. Blanton Forest is arguably one of the best remaining natural areas left in unprotected status east of the Mississippi, and certainly represents one of the most diverse "ancient" growth forests remaining in the United States. Besides the trees, this area includes rare mountain bogs, unique geological features and promises many more rare plants and animals yet to be discovered. These areas represent the state's biodiversity and natural heritage, and offer the potential for long-term eco-tourism. Efforts to secure these communities for conservation recently yielded dramatic progress.

The Blanton Forest preserve design includes more than 60 tracts of land and more than 2,500 acres of uncut forest on the south face of Pine Mountain near Harlan, Kentucky. Several years ago, the state acquired the first of two large tracts of land that contain the uncut section of mixed-mesophytic hardwood forest. Last June, six years of negotiations yielded an option to the Kentucky Natural Lands Trust (KNLT) for the remaining tract, which covers more than 1,250 additional acres.



KNLT is operating in partnership with the Kentucky Heritage Land Conservation Fund Board and the Kentucky State Nature Preserves Commission (KSNPC) to raise the acquisition costs and a long-term stewardship endowment. Then the area will be transferred to the state for its permanent protection as a dedicated state nature preserve. The KNLT will continue to manage stewardship endowment funds and make annual transfers to government or university management teams selected to take care of the preserve in future years. Meanwhile, all partners are in pursuit of conservation easements and other significant acquisitions to fill out the planned 6,000-acre preserve design. This includes efforts to add two additional large tracts of land to the protection effort that include old growth trees, and buffer land around the more sensitive areas of the preserve.

Blanton represents a



Beautiful fall foliage on the Black Mountain peaks (above); Purple fringed orchid (*Platanthera psycodes*) is a rare flower found on Black Mountain (right); Secretary James Bickford, Natural Resources and Environmental Protection Cabinet, signs the order resolving the Lands Unsuitable Petition for Black Mountain. This was the first step in efforts to preserve the state's highest peak (below). Scenic and nature photos by Kentucky State Nature Preserves Commission



Photo by Mark York



Watts Creek runs through Blanton Forest (left); a perfect example of understory found in Blanton Forest, an old growth forest (below).

preserve of old growth 10 times the size of the Lilly Cornet Woods, which historically was seen as the only remaining tract of virgin forest in the state. Other than minimal impacts from campers' trails and the chestnut blight, this area provides us with an opportunity to examine an unimpacted ecosystem and native community in the headwaters of the Cumberland River. Its protection and resulting opportunities for long-term research will help establish base line data for water quality programs. It was awarded the

first grants under the Clean Water Act for land acquisition in history.

The Blanton Forest project will set many precedents, and will also form the "base line" for a potential eco-tourism industry in southeastern Kentucky. Long-term plans call for development of environmental education and interpretive centers that can draw visitors to Blanton and then direct them to many other nationally significant areas along Pine Mountain and beyond. Based on recent developments, it appears one of these other world-class area

attractions will be Big Black Mountain.

Many years ago, the first efforts by The Nature Conservancy to purchase Big Black from U.S. Steel were not successful. The subsequent division of mineral, surface and timber interests among many different private land-owners has defeated ongoing protection efforts. The potential cost of this large project also chilled most serious efforts to preserve the land. The value of the coal and timber on the mountain far exceeds any of the historical efforts in Kentucky to fund natural area protection efforts. As the highest point in the state, Big Black houses many species of plants, nesting birds, animals and biological communities. The settlement of the Lands Unsuitable for Mining litigation resulted in an offer to sell the timber rights from an elevation of 3,600 feet and mineral rights from 3,800 feet to the top of the mountain. The state is contracting

mineral and timber appraisals funded by the Kentucky Heritage Land Conservation Fund Board to see if the offers are within an acceptable fair market value. The state must make a decision soon on whether to accept these offers for partial interests. If the state does accept the offers, it will need to identify acquisition funds before the end of the next legislative session. Additional negotiations regarding public-access rights to the top of the mountain are also underway. Although many details are still to be

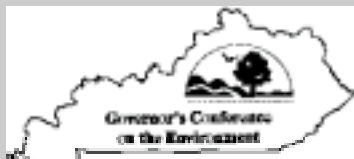


solved, the protection of Big Black has never been closer to a reality. The environmental community, the governor's office and the private landowners have all made significant efforts to move the project this far. All parties deserve recognition for their efforts to respond positively to the broad-based concern the citizens of the state have shown for this cultural and natural landmark.

"Big Black" is like nowhere else in Kentucky

- A large portion of the mountain, more than 4,400 acres, is the only place in Kentucky above 3,600 feet. One hundred eighty acres are above 4,000 feet;
- The area has a type of northern hardwood forest found nowhere else in the state;
- More than a dozen rare plants are found there, including the largest colony of Turk's-cap lily in the state; and
- Nine species of birds found there nest nowhere else in the state.

Statistics taken from Kentucky Alive



Governor's Conference scheduled for Nov. 9-10

Current environmental concerns and issues with emphasis on Eastern Kentucky will be discussed at the 24th Annual Governor's Conference on the Environment that will be held at Jenny Wiley State Resort Park.

The topics include:

Water Cleanup and Infrastructure Development in the Commonwealth - Speakers from Eastern Kentucky counties will discuss the PRIDE (Personal Responsibility in a Desirable Environment) program, straight pipes, water supply and wastewater treatment planning and

efforts by Logan and Todd counties to combine local water supply districts to create the largest rural regional water supply system in Kentucky.

Initiatives in Surface Mining and Reclamation Activities - This session will address the cleanup of the Ketchup Lake and the Dollar Branch mine sites; reforestation on surface-mined lands; and the use of digital technology, GPS units, the Web and other modern technology to implement current and future environmental regulations.

Cleaning Up the Environment - This session includes a look at the success of the first Commonwealth Cleanup Week; the cabinet's waste tire management and tire amnesty programs; and the

trial use of tire-derived fuel in Kentucky.

Container Deposit Legislation - Over the past two years, a special task force has studied state recycling issues. Task force members will discuss their findings and viewpoints.

Registration for the conference will be \$45. For a registration form, contact Veda Aldridge at (502) 564-7320 or visit the conference web site at <http://www.nr.state.ky.us/nrepc/governor/govregistration.htm>

Overnight accommodations may be made by calling Jenny Wiley State Resort Park at (800) 325-0142 or the Holiday Inn-Prestonsburg at (800) HOLIDAY or (606) 886-0001.

Annual convention of state conservation districts held

By Martin Bess
Division of Conservation

More than 600 people attended the 1999 Kentucky Association of Conservation Districts (KACD) state convention July 11-13 at the Galt House in Louisville. The KACD holds this conference annually to inform its members and other attendees about water quality and conservation programs, and to recognize those who contribute to Kentucky's conservation programs.

John Chism, a district supervisor in Clark County for 23 years, received the Distinguished Leadership Award for his dedicated leadership to conservation districts at the local, state and national level. Patrick Henderson was elected to fill out Chism's term as KACD president. Also elected were Kevin Jeffries, vice president, and Randy London, secretary-treasurer.

The Outstanding Conservation Cooperator Award is presented to a farmer who not only implements best management practices and other conservation techniques, but who also demonstrates and educates other members of the community on these methods. The 1999 winner is the Mabry Farm in Todd County (awarded \$500), owned by Susan Menees and the late Robert Menees. The state runner-ups are Donald and Linda Elkin of Warren County (awarded \$250).

This year's Distinguished Service Award was presented to Sen. Mitch McConnell for his service to Kentucky's conservation district program. Sen. McConnell also provided the keynote address.

The 1999 Conservation Person of the Year Award was presented to William R. Sprague, a Union County farmer who has been district supervisor since 1981 and Kentucky Farm Bureau president for the past eight years. Sprague's efforts to broaden and strengthen partnerships within agriculture ensured the success of programs such as the Agriculture Water Quality Act, Well Water Testing Program, state-funded cost share assistance to landowners and, more recently, the Agriculture Watershed Awareness Program.

The Outstanding Conservation District Environmental Education Award of the Year was presented to the Bath County Conservation District. The Secondary Conservation Teacher of the Year is Rebecca Curry Todd, a science teacher at Taylor County High School in Campbellsville. Betty Grusy, a fifth-grade teacher at Lincoln Trail Elementary in Hardin County, is the Elementary Conservation Teacher of the Year.

The Goodyear National Association

of Conservation Districts Conservation Awards Program emphasizes the concepts of planning and evaluation of district services. Fayette County won in the Eastern region and Hopkins County in the Western region. Honor Awards are given to those districts that, because they have won the Goodyear award within the past five years, are ineligible, but that continue exemplary programs. Honor Award recipients were Boyle, Fleming, Hardin, Clark, Daviess, Hart, Pendleton and Scott counties. Counties that were area winners were Fulton in Area 1, Ohio in Area 2, Warren in Area 3, Nelson in Area 4, Nicholas in Area 5, Mercer in Area 6, Rockcastle in Area 7, Bath in Area 8 and Lee in Area 9.

Forestry awards were presented to the Pulaski County Conservation District and the Division of Forestry South-central District. The Meade County Conservation District won the Soil Stewardship Award. The Junior Board Award was given to the Taylor County Conservation District Junior Board. Virginia Bibb Golden of Mercer County won the KACD Auxiliary Scholarship, and William T. Smith of Woodford County won the George Crafton Memorial Scholarship. The winner of the Kentucky Envirothon was Caldwell County.

Watershed Process Update

Stories by Lee Colten
Division of Water

The Source Water Assessment and Protection Susceptibility Guidance document was discussed at the last Watershed Steering Committee meeting. Many helpful comments were received, and numerous changes have been made. The EPA has given Kentucky final approval, thanks to the input of the Steering Committee. The Steering Committee will be getting together again in the fall to review a final version. The guidance document is intended to provide water utilities and water supply planners with a tool for assessing the potential risks and threats to their water supply. This risk assessment helps utilities determine where they need to prioritize their attention in addressing potential contamination sources.

Cumberland/Four Rivers Unit: Activities in the Cumberland/Tennessee/Mississippi/Ohio Basin unit are underway. The citizen-led Watershed Watch has been training and sampling in the basins since last spring (see Watershed Watch box for more information), and the river basin teams convened in September. A listing of team members is provided below. The Watershed Steering Committee is to be commended for its assistance in developing these teams. Basin coordinators will be hired this fall. Pamla Wood and Lee Colten will begin orientation, planning and outreach activities with the teams to get things rolling until the coordinators come on board.

Kentucky Basin Unit: Monitoring data has been analyzed and assessments of streams and lakes, for reporting use-support under Section 305(b) of the Clean Water Act, are due for completion. Lindell Ormsbee and Nel Ruffin, the Kentucky River Basin co-basin coordinators, are putting together the assessment report, which summarizes use-support and other watershed data to be used in the watershed prioritization process.

Salt Basin Unit: Monitoring activities are on schedule; however, due to drought conditions this summer, many sites were too dry to sample for biological communities. The Salt River Basin Team is researching and developing education and outreach media, including a cooperative project with the Kentucky Department of Fish and Wildlife Resources to produce a watershed video.

Licking Basin Unit: Monitoring activities are on schedule; however, the drought has been particularly hard on this region of the state, and several sites were not sampled because of lack of water in smaller streams. One member of the Licking team is laying groundwork for a "task force" or local watershed group in the Northern Kentucky area. The Licking team is also researching current and historical data throughout the management unit.

Four Rivers Basin Team (Lower Cumberland/Tennessee/Mississippi/Ohio)

- **Communications:** Jeanne Davis (Lower Cumberland) and Daryl Tichenor (Purchase Area), both of Cooperative Extension
- **Surface Water Quality/Monitoring:** Joe Deavers (Division of Water [DOW] Paducah Regional Office [RO]); Ed Carroll (DOW Madisonville RO); Gene Zirkle (Fort Campbell); Bob Sneed (Nashville Corps of Engineers [COE]); Dave White (Hancock Biological Station)
- **Water Resources:** Billy Smith (Tennessee Valley Authority)
- **Groundwater/Geology:** Steve Fisher (Kentucky Geological Survey, observer role on mailing list); Dr. Peter Whaley (Murray State University)
- **Agriculture:** Bob Johnson and Karen Leigh (Purchase Rural Conservation and Development [RC&D]); Charlie Turner (Pennyrile RC&D)
- **Forestry:** Tony Luciano (Mayfield Division of Forestry [DOF])
- **Fish & Wildlife:** Paul Rister (Kentucky Department of Fish and Wildlife)

Continued on Page 15

What is Watershed Watch?

Watershed Watch is a group of more than 900 volunteers in Kentucky. They are giving their time to improve the waterways of the Commonwealth through a coordinated campaign of water quality monitoring, skills development and advocacy. The effort includes more than 300 organizations and 63 leaders organized in six local watershed steering committees. These committees help by providing volunteers, staff, technical assistance, instruction and financial resources. The steering committees are assisted by staff from a number of organizations. Two more steering committees are currently being organized in the Green and Tradewater basins to complete the coverage of the entire state.

In 1999, training was conducted in basic stream monitoring at 20 workshops. Advanced training workshops in water quality monitoring, regulatory processes and watershed science are also provided. Volunteers are collecting samples at more than 300 monitoring sites in the state. Data is provided to all project participants and any interested party who requests it.

Watershed Watch provides technical assistance to local watershed groups for dealing with issues raised by their monitoring and assessment efforts. Each fall, a "Watershed Protection Conference" is held in each local watershed so that individuals, community organizations, scientific researchers and agency personnel can come together to discuss the condition of the waterways revealed by the monitoring.

Each local watershed steering committee develops its own goals and operational plans based on the needs in its communities and unique conditions in its waterways. The local watershed steering committees cooperate through an Inter-basin Coordinating Committee to develop scientific protocols, training resources, financial resources, data management, organizational support and leadership development that ensures the delivery of services. **What Watershed Watch does best is deliver science to the people, then deliver the people to the water's edge.** There, they learn firsthand the condition of their streams, who in their community shares their concerns, and the power they have to effect change.

For more information see <http://water.nr.state.ky.us/watch/> or call Watershed Watch at (606) 846-4905 or (800) 928-0045 (Ext 473).

State Revolving Fund loans help municipalities clean up waterways

By Maleva Chamberlain
Division of Water

Since the State Revolving Fund (SRF) for wastewater treatment projects began making funding commitments on May 3, 1989, loans in the amount of \$251,022,230 have been approved and implemented. As a result, construction of new wastewater treatment plants, expansions of others, and repairs and extensions of wastewater collection systems have occurred in many locations across the state.

While we can see the construction, we can't actually see how this construction has affected the waterways to which the wastewater treatment plants discharge. A comparison of data from before SRF loans were granted in 1990 to post-SRF construction in the July 1997-June 1998 period for 53 municipalities that received loans shows the following:

BOD₅ is a measure of the oxygen demand required to break down the carbonaceous and nitrogenous components of wastewater. As a result of SRF-funded construction, 67 percent of the municipalities that have received loans improved their effluent discharge quality by reducing BOD₅ concentration. The discharges from two other municipalities remained the same but were in compliance.

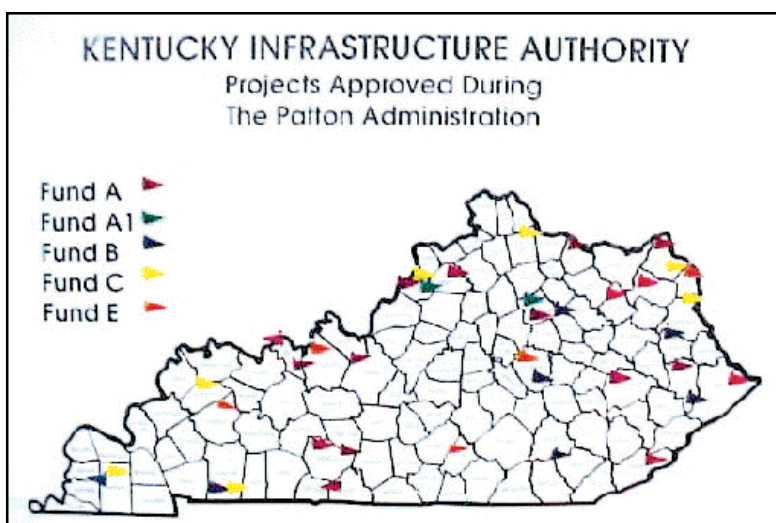
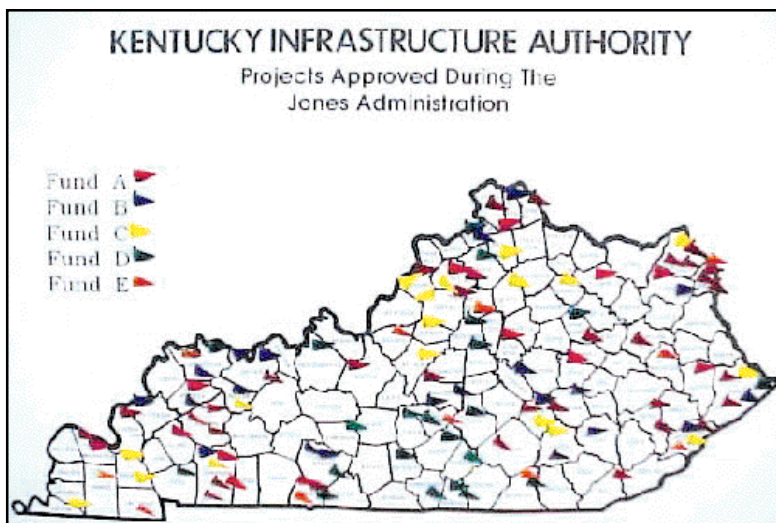
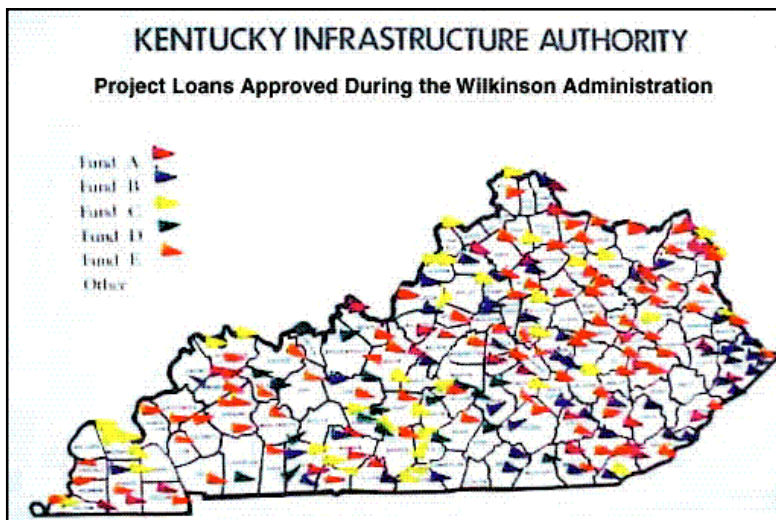
TSS, or total suspended solids, are a component of solids derived from toilets, sinks, baths, laundries, garbage grinders and water softeners. The total suspended solids discharge from these plants improved tremendously. Seventy percent of SRF-funded plants had fewer solids discharged to streams through their effluent.

Ammonia depletes oxygen required for the nitrification process. It can be toxic to aquatic life based on water temperature and pH. It also contributes to algal growth. Seventy-six percent of plants that received SRF funds showed reduced ammonia concentration in their discharges.

Flow: SRF projects have reduced or eliminated inflow and infiltration and eliminated or reduced overflows and loading on the plants. Flow from these plants increased as the bypassing and infiltration and inflow problems were eliminated and wastewater made its way to the plant for treatment. The total flow from the 53 municipalities increased from 66 to 84 million gallons a day.

In addition, SRF-funded projects have helped eliminate more than 900 package plants. Eliminating them has decreased the bypasses of raw sewage. These excessive flows are now getting treatment at the SRF-funded wastewater treatment plants.

Population served: Twenty-two municipalities have increased their flow by a total of 18.1 million gallons a day. They have served an additional population of 181,000 at a daily average sewage generation rate of 100 gallons per day



per person. The total SRF spending on these 22 municipalities was \$70,316,000, or no more than \$389 per person over a nine-year period. That is less than \$43 per person per year. The tremendous benefits of improvement in water quality and the environment and the large number of citizens served by these projects far outweighs the amount of SRF money spent.

Two projects illustrate advantages of State Revolving Fund

By Maleva Chamberlain
Division of Water

Money from the State Revolving Fund (SRF) will help the city of Crestwood in Jefferson County accomplish a number of objectives.

Crestwood is an unsewered community. With an SRF loan of \$5,956,634 and matching funds from a League of Cities loan, along with contributions from two land developers, the city is building a sewage collection system to provide sewer service to residents of both Crestwood and Park Lake. Park Lake has a collection system with a package treatment plant. The new system, which will transport the waste to the Louisville/Jefferson County Metropolitan Sewer District's Hite Creek Plant in eastern Jefferson County, will replace faulty septic tanks and 13 inadequate package treatment plants.

The total cost of the project will be \$10,358,404. Construction is scheduled for completion by the end of 1999.

This project represents a successful regionalization effort. It will provide a smaller city with a sewer system without the need to build, operate and maintain a wastewater treatment plant. In addition, the water quality in Harrods Creek and in Floyds Fork, which has become degraded, should improve considerably.

A larger, more complex project in Madisonville is enabling the city to meet its discharge permit parameters, eliminating the pollutant load that had been going into Flat Creek, and placing the adequately treated discharge into Greasy Creek. It is also enabling growth and development in the area because there is now adequate wastewater treatment infrastructure available. Furthermore, the low interest rates available through the SRF will save the city millions of dollars.

In 1993, the city was experiencing multiple problems with its wastewater treatment and collection system. The existing treatment plant was limited in treatment capacity and was incapable of

Continued on Page 15



The Kentucky Buy Recycled Alliance sponsored billboards across the state featuring its slogan: "Buy Recycled--It's as Good as New." The billboards were placed in Frankfort, Lexington, Louisville, Northern Kentucky, Owensboro and Bowling Green during April and May. Photo by Lamar Advertising

Counties profit from abandoned vehicle collection

By Anya Armes Weber
Division of Waste Management

Two counties recently have been involved in collecting junk cars from their land with help from the state Division of Waste Management. Wolfe and Grant counties are two of the latest to participate in the Kentucky Abandoned Vehicle Recovery Program.

The program's coordinator, Fred Kirchhoff, said Wolfe County has recovered 147 junk cars plus a pile of miscellaneous scrap metal. Collected material will be sold to scrap metal dealers.

An abandoned vehicle recovery project is organized on a countywide or multicounty basis. It is initiated through a county judge-executive, who names a civic group or school as a sponsor. The sponsor must locate the abandoned vehicles, obtain signed liability releases from owners and provide a temporary storage area for the cars.

The Division of Waste Management provides release forms, maps, assistance in planning and supervision of the retrieval operation. The division also notifies scrap dealers in the state, and the vehicles are sold by a sealed bid. The sponsor receives 70 percent of the proceeds, and the division keeps the remaining 30 percent to pay for program expenses.

Wolfe County officials said they will use their funds for improvement to county parks. Grant County was scheduled to begin an abandoned vehicle drive late this summer.

For information on how your community can take part in the Kentucky Abandoned Vehicle Recovery Program, call the Division of Waste Management's Resource Conservation and Local Assistance Branch at (502) 564-6716 or visit <http://www.nr.state.ky.us/nrepc/dep/waste/programs/rcla/abandon.htm>



Junk cars are unloaded as part of Wolfe County's Abandoned Vehicle Recovery Program. A total of 147 cars was collected during the program. Photo by Fred Kirchhoff

Solid waste coordinators discuss issues at summer workshop

By Anya Armes Weber
Division of Waste Management

County solid waste coordinators gathered in June to trade ideas and receive updates on state solid waste issues at their annual summer workshop in Lexington.

The Division of Waste Management's Resource Conservation and Local Assistance Branch and the Solid Waste Coordinators of Kentucky cosponsored the workshop. About 85 solid waste coordinators, judge-executives and magistrates attended.

Workshop presenters talked about illegal dumping, waste tire amnesty and solid waste regulations and permits. Principal Assistant Richard Thomas and Deputy Secretary Bruce Williams presented highlights from the video surveillance footage taken at several dumps throughout the state.

Sara Evans, supervisor of RCLA's Local Assistance Section, said workshop participants get the most useful knowledge from each other.

"Their sharing information is the crux of what we're trying to do," she said. "That is the greatest benefit of the workshop, all the coordinators agree."

RCLA Branch staffers use information from the counties' annual solid waste reports to distribute awards to counties and solid waste coordinators. Rowan County won the Outstanding Leadership in Solid Waste Management Issues award, and Caldwell County was awarded Outstanding Leadership in Solid Waste Management Issues on a Shoestring.

Evans cited Rowan County for its well-documented report and the diversity of the programs provided. Caldwell County had significant waste reduction in 1998, Evans said, and beefed up its recycling program while promoting several other activities.

Cathy Guess, an environmental technologist chief in the RCLA Branch, received a special award for her eight years of service to the division.

For a complete list of winners, visit the Division of Waste Management's web site at <http://www.nr.state.ky.us/nrepc/dep/waste/programs/rcla/rclahome.htm>. Click on "workshops."

The fall solid waste workshop will be in November, probably at Kentucky Dam Village, Evans said.

Watershed Process Update

Continued from Page 12

Resources[KDFWR]); Rick Huffines (U.S. Fish and Wildlife Services)

- **Human Health:** Don Robertson (Pennyryle District Health Dept.); Eddy Seay (Purchase District Health Department)
- **Planner:** David Shore (Pennyryle Area Development District [ADD]); Mark Davis (Purchase ADD)
- **Social/Economic Issues:** Don Swearingen (Elf Atochem and Purchase Area Environmental Forum)
- **Data & GIS:** Jane Benson (Murray State University); Mark Campbell (COE)
- **Citizen's Nongovernmental Representative:** Wendy Smith (Cumberland River Compact [CRC]); Robert Wise; others to be nominated and selected by team as needed.
- **Tennessee Coordination:** David Duhl (Tennessee Dept. of Environmental Control [TDEC]); Cumberland River Compact

Upper Cumberland River Basin Team

- **Communications:** Rob Miller (Harlan County Extension Service); Cheryl Whitt (Cooperative Extension)
- **Surface Water Quality/Monitoring:** Morgan Jones (DOW), Joan Garrison (DOW London R.O.)
- **Water Resources:** Richard Tippet (Nashville COE)
- **Agriculture:** Rodney Hendrickson (Cumberland Valley RC&D)
- **Forestry:** Morgan Jones (DOW), Matt Richey (Pineville DOF)
- **Fish & Wildlife:** Doug Sterns and John Williams (KDFWR)
- **Human Health:** Danny Davis (Cumberland Valley District Health Dept. with assistance from Lonnie Saylor, Harlan Co. Health Dept.)
- **Planning/Socioeconomic Issues:** Kathy Hall (PRIDE); John Brunner (Cumberland Valley ADD)
- **Data & GIS:** Mark Campbell (Nashville COE)
- **Tennessee Coordination:** David Duhl (TDEC); Cumberland River Compact
- **Citizen's Nongovernmental Representative:** Wendy Smith (CRC); Jerry Waddle; Bonnie Kinn (Appalachian Science in the Public Interest); other members may be selected by the team as needed.

Two projects illustrate advantages of State Revolving Fund

Continued from Page 14

transporting peak flows into the plant. These problems caused overflows at the plant site and back in the collection system. Inflow and infiltration to the collection system was a major problem, generating peak flows estimated at 15 million gallons a day (MGD).

A proposal was made to separate the wastewater flow into east and west drainages going respectively to the existing 4.5 MGD treatment system on Flat Creek and to a new 6.0 MGD system on Greasy Creek. Plans and specifications for the new system and interceptors were finalized in 1994.

The project was originally to be funded by a bond issue with a projected interest rate of 4.8 percent. However, it was finally financed by the Kentucky Infrastructure Authority through Fund A of the SRF at 2.6 percent. A difference in interest rates of these amounts on a \$15,553,000 project equals a savings of \$4,396,000 in interest payments over 20 years.

Construction began in March 1995 with plant start-up in October 1996. During construction, the city evaluated the cost of operating both plants versus shunting all flow to the new plant. The city completed plans and specifications in 1996 for a 9.0 MGD lift station and force main to transport all remaining flow from the old treatment plant to the new one. Construction of the new lift station was completed in April 1997, and the old treatment plant was taken out of service. This was funded by a 5.2 percent bond issue. The new plant is now averaging approximately 75 percent of capacity. The next improvements will involve stopping collection system bypasses and regaining capacity at the new plant by removal of inflow/infiltration sources.

Court takes action on EPA requirements

By Ken Hines
Division for Air Quality

In May 1999, the United States Court of Appeals for the District of Columbia issued a decision that threw several national air quality initiatives into turmoil. New standards for ozone and particulate matter were overturned, made unenforceable or remanded to the U.S. EPA.

Additionally, a major initiative to reduce ozone pollution in the Eastern United States was delayed and may yet be overturned by that court. Finally, the court criticized the U.S. EPA for its interpretation of the Clean Air Act, saying that its rulemaking amounted to an unconstitutional delegation of legislative authority.

The decision, rendered by a panel of three of the court's nine judges, was a partial response to actions filed against the U.S. EPA by a number of industries and states. One of the three judges on the panel dissented, but by a 2-to-1 majority the panel found that the U.S. EPA:

- Interpreted Sections 108 and 109 of the Clean Air Act so loosely that they are rendered an unconstitutional delegation of legislative power. The court demanded that the EPA adopt some "intelligible principle" to use in applying the factors it considers when setting a new ozone standard;

- Improperly altered the schedule for achieving the ozone standard when it created a new level for that standard. The EPA ignored the additional time given by the Clean Air Act for areas having very serious pollution problems to meet the ozone standard;

- Failed to consider the health benefits of tropospheric ozone when setting the new ground-level ozone standard; and

- Created a particulate matter standard (the new PM10 standard) that the court set aside because it is not independent from the new fine particulate matter standard.

The D.C. Circuit Court also delayed submission of revisions to state implementation plans mandated by the NOx SIP Call. The ruling prevented states from having to submit plans for reducing NOx emissions from power plants and large industrial sources by the EPA-mandated September 30, 1999, deadline. Although petitioners had requested a stay until April 27, 2000, the court issued a stay that is effective until further order of the court.

The most devastating part of the decision to the EPA is the finding that the EPA failed to establish a "bright line" with which to compare the criteria it was considering when evaluating the ozone standard's ability to protect human health with an adequate margin of safety. Since it did not establish the basis for its decision in advance, the EPA left itself more discretion in setting a new standard than the U.S. Constitution allows for an administrative agency. The dissenting judge disagreed vigorously with this finding, accusing his colleagues on the panel of ignoring many decades of legal precedence regarding administrative branch authority.

The court's decision did not totally

favor the petitioners. Several important positions held by the U.S. EPA were confirmed, including the propriety of:

- Ignoring potential economic costs when establishing health-based standards (the court upheld the EPA's contention that the Clean Air Act prohibits it from considering anything except health effects when setting such standards);

- Restricting its evaluation of health effects to those caused by the pollutant being evaluated (petitioners had contended that the agency must consider health effects accruing from the economic impacts of a new standard); and

- Interpreting the National Environmental Policy Act (NEPA), the Unfunded Mandates Reform Act and the Regulatory Flexibility Act so that they do not demand the EPA to consider economic impacts in contravention of Clean Air Act requirements.

The court also found in favor of the EPA regarding several issues specific to the particular standards and actions under consideration. For example, it agreed with the EPA that the proposed standard for fine particulate matter did not require that administrative procedures for considering a new pollutant be followed since the fine particulates are part of the particulates already being regulated.

Final decisions by the court, and final actions by the EPA to correct deficiencies it already has identified, are not expected until late in 1999 or early in 2000, and in some cases even later. Meanwhile, the EPA is appealing the ruling.

America Recycles Day is Nov. 15

By Anya Armes Weber
Division of Waste Management

The third annual America Recycles Day (ARD) is Nov. 15. People across the country will pledge to recycle more and be entered to win a house made from recycled materials, a trip to Disney World or a computer. Kentucky communities

again will be joining in the celebration with a variety of local activities.

ARD continues to remind shoppers to "close the loop" on recycling by purchasing items made with recycled materials. This year's theme is "For our children's future . . . buy recycled today."

People 18 years and older who pledge to recycle will be eligible to win the American Green Dream House, to be awarded in December 2000. People younger than 18 who make the pledge will be eligible for two prizes. They are 25 remanufactured computers for donation to

a school of the winner's choice, and a computer for the winner's own use; and a trip for four to Disney World (four days/three nights) including round-trip airfare, hotel accommodations and tickets to the park.

Last year's national youth prize recipient was Cecil Roberts of Tyner, Ky. Cecil is a student at Tyner Elementary School and made the recycling pledge at school through Southern Appalachian Recycling. For more information about ARD visit <http://www.americarecyclesday.org/>



Patton appointees take oath at Air Quality Small Business Panel meeting

Stories by Rose Marie Wilmoth
Air Rep. for Small Business

On May 26, 1999, Gov. Patton announced the following appointments to the Small Business Stationary Source Compliance Advisory Panel: Moorman Beard, Bowling Green, to represent small business stationary sources; Jean G. Watts, Lexington, to represent the public at large; and Rep. Robert Buckingham, Providence, to represent the majority leadership of the House of Representatives.

Additional appointments were Alice Howell, Lexington, to represent small business stationary sources and Harry H. Hoe, Middlesboro, to represent the majority leadership of the Senate. Gov. Patton also reappointed David Disponett, Lawrenceburg, to represent the minority leadership of the Senate; Rep. Stephen R. Nunn, Glasgow, to represent the minority leadership of the House of Representatives; and Diana Andrews, Frankfort, to represent the Natural Resources and Environmental Protection Cabinet.

Gov. Patton announced appointments to the Small Business Stationary Source Compliance Advisory Panel. Shown left to right in the first row, Carolyn Embry and Alice Howell; second row, Patti Kirk, Diana Andrews and Rep. Robert Buckingham; top row, Rep. Stephen Nunn, David Disponett, Jon Trout and Harry "Bo" Hoe. Photo by Creative Services

Other members reappointed were Patti Kirk, Frankfort, to represent the Economic Development Cabinet; Jonathan L. Trout, Louisville, to represent the Jefferson County Air Pollution Control District; and Carolyn Embry, Louisville, to represent the public at large.

The new panel was sworn in on July 26 at the regularly scheduled panel meeting. Dept. for Environmental Protection Commissioner Robert W. Logan welcomed the members and thanked them for their willingness to serve on the panel.

John Hornback, Division for Air Quality director, requested assistance from the panel in reviewing air quality regulations and evaluating the effectiveness of the small business assistance program.

The Advisory Panel is part of a program that was designed by the state Division for Air Quality to comply with the federal Clean Air Act Amendments of 1990. The panel has been meeting quarterly since March 1995.

The amendments include provisions that direct each state to establish an assistance program to provide small businesses with information about regulatory requirements under the act.

At the Sept. 20 Advisory Panel meeting, the Small Business Air Quality Stewardship Awards were presented by James E. Bickford.

See story below for details about the award winners.

Secretary Bickford presents Air Quality Stewardship Awards

Natural Resources and Environmental Protection Cabinet Secretary James E. Bickford presented the second annual Small Business Air Quality Stewardship Awards at the Lieutenant Governor's Mansion on Sept. 20 during an awards

luncheon.

The award winners were Lily Creek Industries, Russell Springs and Bluegrass Furniture Co. Inc., Fordsville.

The Small Business Stationary Source Compliance Advisory Panel established

the award in 1997 to recognize small businesses that have taken the initiative to reduce the impact of their operations on air quality. The panel also wanted to identify companies whose air quality

Continued on Page 19



(left photo) Pictured left to right: Jon Trout, acting panel chairman; Diana Andrews, acting panel vice-chairman; Fred Conner, Lily Creek Industries; and Cabinet Secretary James E. Bickford.

(right photo) Pictured left to right: Jon Trout, Diana Andrews, Ken Dietel of Bluegrass Furniture Co. Inc. and Secretary James E. Bickford. Photos by Creative Services



PM_{2.5} sampling well under way

By Larry Garrison
Division for Air Quality

In 1997, the U.S. Environmental Protection Agency established new National Ambient Air Quality Standards for particulate matter smaller than 2.5 microns (PM_{2.5}). States and agencies were to design monitoring networks in 1998 to measure PM_{2.5} and were to begin sampling in 1999.

Kentucky proposed a network of 22 sites in 18 counties. As of August of this year, more than 1,000 PM_{2.5} samples have been collected. Currently none of the sites have reported an exceedence of the 24-hour standard of 65 micro-grams per cubic meter. As for the annual standard of 15 micro-grams per cubic meter, several sites are close to or above this level. However, three years of sampling are needed in order to determine if a violation of the annual standard has occurred. Statistical summaries of PM_{2.5} sampling data are available by contacting Jerry Sudduth at (502)573-3382.



Division for Air Quality employee Pat Jacobs collects a sample from a PM_{2.5} sampler. Division for Air Quality photo

School officials learn about asbestos

By Robbin Edwards
Division for Air Quality

The Division for Air Quality sponsored “Asbestos Compliance Tips” training last spring and this fall for more than 100 school officials at 14 locations around the state. With partial funding from the U.S. EPA, the division was able to hire a professional asbestos trainer, Environmental Management Institute, to present the training at no charge to the schools.

“The response from attendees was gratifying,” said Parker Moore, manager of the division’s Special Programs Branch. “They agreed that this training will help keep them on top of things and out of trouble, help them prevent asbestos problems.”

Robbin Edwards, who also works in the division’s Special Programs Branch, had the idea for the training after recognizing that many schools were in violation of state and federal asbestos-in-schools regulations simply because the schools didn’t have staff who knew about the requirements.

“Some school systems didn’t even



Dr. Jack Leonard of the Environmental Management Institute demonstrates the use of a glovebag in removing asbestos-containing pipe insulation. Division for Air Quality photo

know about the regulations, despite our extensive outreach over the last decade,” explained Moore. “Many who knew

about the regulations didn’t know how to comply, and those who knew a little about how to comply went away from the training knowing how to comply more thoroughly and efficiently.”

Edwards, Moore and other division staff audited each training session and gave high marks to the training. The curriculum covered requirements for high-risk schools (those with large amounts of friable or crumbly asbestos), low-risk schools (those with nonfriable asbestos materials like floor tile) and zero-asbestos schools. Topics included safe management of asbestos materials, abatement options, custodial awareness training, documentation of asbestos surveys and abatement activities, recordkeeping, designation and training of a person to be responsible for keeping the school in compliance, and annual notifications to parents and teachers about the school’s asbestos-management programs.

Classes were held at state parks, and the others were hosted by the Jefferson County Public Schools, the Fayette County Board of Education and the Archdiocese of Louisville Schools.

Vehicle emissions testing began Sept. 1

By Lillie Cox
Division for Air Quality

The Northern Kentucky Emissions ✓ Check vehicle testing program began Sept. 1 for about 244,000 motorists in Boone, Campbell and Kenton counties. This program will check tailpipe emissions, the integrity of vehicle fuel systems, and the condition of emission controls such as catalytic converters.

The program is required by the Clean Air Act because of ground-level ozone (smog) problems in the Cincinnati-Northern Kentucky area. Ozone is formed by chemical reactions involving volatile organic compounds as well as nitrogen, in the presence of sunlight and heat.

Vehicles produce more ozone-forming compounds than any other group of sources in Northern Kentucky. When poorly maintained vehicles are identified through these tests, they must be repaired and re-tested. These repairs, such as replacement of the gas cap or a tune-up, should reduce emissions from that vehicle and thus contribute to improved air quality in the area.

The test is required for vehicles made in or after 1968. Vehicles with odd-numbered model years are tested in odd-



numbered years. For example, a 1991 vehicle would be tested in 1999, 2001, 2003 and so on. Vehicles with even-numbered model years are tested in even-numbered years.

Vehicle owners will be notified by mail when the time for their Emissions ✓ Check is approaching. Owners can have their vehicles tested up to 60 days before the first day of the registration month or any time during that month.

The test takes no more than 10 minutes. Testing stations are located in each of the three counties where the test is required. In Boone County, the testing station is at 5760 Constitution Drive in Florence. In Campbell County, the station is at 1426 Gloria Terrell Drive in Wilder. In Kenton County, the station is at 2029

Rolling Hills Drive in Covington. Motorists may test at any of the three stations, regardless of their county of residence.

Questions about this program may be directed to Parker Moore, manager of the division's Special Programs Branch at (502) 573-3382.

You may also call the Emissions ✓ Check toll-free

hotline at **1-877-291-8787** to talk to the testing contractor, Envirotest Systems Corp.

Proposed chemical risk management regulations withdrawn

By Parker Moore
Division for Air Quality

In June, the Division for Air Quality withdrew proposed regulations that would have required more than 1,000 Kentucky facilities to submit Risk Management Plans (RMPs) for preventing chemical accidents and responding to them when they occur.

The division's action was precipitated by a lawsuit filed against the U.S. EPA by the National Propane Gas Association to exempt propane from the RMP requirements. Because the lawsuit could not go to court before the June 21, 1999, filing deadline for RMP submittal, the U.S. District Court ordered the U.S. EPA to stay the RMP requirements as they applied to sources with propane in their processes.

Meanwhile, the U.S. EPA has proposed to relax the requirements for sources of all volatile hydrocarbons, including propane.

"With the propane situation in such a state of flux, and with our intention to have our regulations be identical to the federal requirements, we decided to pull the regulations until things stabilize," said Mark King of the division's Special Programs Branch.

Secretary Bickford presents Air Quality Stewardship Awards

Continued from Page 17

stewardship practices could be used by other businesses.

Lily Creek Industries received an award for its leadership in air quality community education. The company produces high-quality metal parts with precise tolerances for use by other industries.

Recently, the business made major changes to improve indoor air quality for its employees and to operate a recycling program.

More than 400 students have toured the plant during class environmental outings. The tours provide an opportunity for students in a rural area to learn about air quality issues.

Lily Creek Industries serves as an example of the importance of air quality responsibility for students who live in an

area that is not experiencing major air quality problems.

Bluegrass Furniture Co. Inc. is a custom manufacturer of high-quality solid wood and hardwood plywood furniture. The company uses coatings and finishes on its products.

Use of different coating products and improvements in the application process have significantly reduced potential and actual emissions while furniture production has been increasing. This has been achieved by converting to water-based coatings and using more efficient spray guns for application.

Both of these companies are leaders in activities that other companies may duplicate to improve air quality in Kentucky.

Wetland Packet: Species selected are suitable for (wet) drained sites. Packet normally includes baldy, mist, cherry bark oak, green ash, pecan, pin, white oak, and white pine. (20 trees each of five oak and seven white pine).

Old Field Packet: Species selected are suitable for dry, excessively dry red, flood plain. Packet normally includes black locust, black oak, mixed oak, dwarfed pine, Virginia pine, white ash, white oak, and white pine. (20 trees each of five oak and white pine).

Name _____

Address _____

Home Phone No. () _____

Daytime Phone No. () _____

CONIFERS		Size of Bundle
	\$0	\$00
Baldypress	\$15.00	\$80.00
White Pine 2-0	\$15.00	\$40.00
White Pine 3-0	\$15.00	\$40.00
Loblolly Pine	\$15.00	\$20.00
Scotch Pine	\$15.00	\$40.00
Shortleaf Pine	\$15.00	\$20.00
Virginia Pine	\$15.00	\$20.00

HARDWOODS		Size of Bundle
	\$0	\$00
Black Oak	\$15.00	\$80.00
Bur Oak	\$15.00	\$80.00
Cherrybark Oak	\$15.00	\$80.00
Mixed Oak	\$15.00	\$80.00
Northern Red Oak	\$15.00	\$80.00
Pin Oak	\$15.00	\$80.00
Shumard Oak	\$15.00	\$80.00
Southern Red Oak	\$15.00	\$80.00
Swamp Chestnut Oak	\$15.00	\$80.00
White Oak	\$15.00	\$80.00
Black Walnut	\$15.00	\$80.00
Pecan	\$15.00	\$80.00
Eastern Redbud	\$15.00	\$80.00

HARDWOODS		Size of Bundle
	\$0	\$00
Black Locust	\$15.00	\$40.00
Yellow-Poplar	\$15.00	\$80.00
White Ash	\$15.00	\$80.00
Green Ash	\$15.00	\$80.00
Sycamore	\$15.00	\$80.00
Wild Plum	\$15.00	\$80.00
Superior Cottonwood	\$15.00	\$80.00

SPECIALTY PACKETS

Available only in bundles of 10 and costs \$25. Packet contents are predetermined, no requests for specific contents can be honored. If a species is unavailable, substitutions of an appropriate species will occur.

Wildlife Packet: Species selected are suitable for wildlife plantings. Packet normally includes black locust, black oak, mixed oak, redbud, bur oak, white dogwood, Virginia pine, white ash, white pine, wild white plum, 10 trees of each species listed.

SPECIALTY PACKETS		Size of Bundle
	\$0	\$00
Wildlife Packet	\$25.00	\$25.00
Wetland Packet	\$25.00	\$25.00
Old Field Packet	\$25.00	\$25.00

KENTUCKY STATE TREASURER'S OFFICE

ADDRESSEE: Select in following amount: Order Amount \$00 - 750.00, 750.00 - 1,500.00, 1,500.00 - 3,000.00, 3,000.00 - 5,000.00, 5,000.00 - 10,000.00, 10,000.00 - 25,000.00, 25,000.00 - 50,000.00, 50,000.00 - 100,000.00, 100,000.00 - 250,000.00, 250,000.00 - 500,000.00, 500,000.00 - 1,000,000.00, 1,000,000.00 - 2,500,000.00, 2,500,000.00 - 5,000,000.00, 5,000,000.00 - 10,000,000.00, 10,000,000.00 - 25,000,000.00, 25,000,000.00 - 50,000,000.00, 50,000,000.00 - 100,000,000.00, 100,000,000.00 - 250,000,000.00, 250,000,000.00 - 500,000,000.00, 500,000,000.00 - 1,000,000,000.00, 1,000,000,000.00 - 2,500,000,000.00, 2,500,000,000.00 - 5,000,000,000.00, 5,000,000,000.00 - 10,000,000,000.00, 10,000,000,000.00 - 25,000,000,000.00, 25,000,000,000.00 - 50,000,000,000.00, 50,000,000,000.00 - 100,000,000,000.00, 100,000,000,000.00 - 250,000,000,000.00, 250,000,000,000.00 - 500,000,000,000.00, 500,000,000,000.00 - 1,000,000,000,000.00, 1,000,000,000,000.00 - 2,500,000,000,000.00, 2,500,000,000,000.00 - 5,000,000,000,000.00, 5,000,000,000,000.00 - 10,000,000,000,000.00, 10,000,000,000,000.00 - 25,000,000,000,000.00, 25,000,000,000,000.00 - 50,000,000,000,000.00, 50,000,000,000,000.00 - 100,000,000,000,000.00, 100,000,000,000,000.00 - 250,000,000,000,000.00, 250,000,000,000,000.00 - 500,000,000,000,000.00, 500,000,000,000,000.00 - 1,000,000,000,000,000.00, 1,000,000,000,000,000.00 - 2,500,000,000,000,000.00, 2,500,000,000,000,000.00 - 5,000,000,000,000,000.00, 5,000,000,000,000,000.00 - 10,000,000,000,000,000.00, 10,000,000,000,000,000.00 - 25,000,000,000,000,000.00, 25,000,000,000,000,000.00 - 50,000,000,000,000,000.00, 50,000,000,000,000,000.00 - 100,000,000,000,000,000.00, 100,000,000,000,000,000.00 - 250,000,000,000,000,000.00, 250,000,000,000,000,000.00 - 500,000,000,000,000,000.00, 500,000,000,000,000,000.00 - 1,000,000,000,000,000,000.00, 1,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000.00, 2,500,000,000,000,000,000.00 - 5,000,000,000,000,000,000.00, 5,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000.00, 10,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000.00, 25,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000.00, 50,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000.00, 100,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000.00, 250,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000.00, 500,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 250,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 250,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 500,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 500,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 2,500,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 2,500,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 5,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 5,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 10,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 10,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 25,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 25,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 50,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 50,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00, 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.00 - 250,0

“Rocket boxes” provide homes for bats at DSMRE

**Submitted by Vicki Pettus, Director
Division of Permits**

On May 14, 1999, the Department for Surface Mining Reclamation and Enforcement installed two bat boxes at its Hudson Hollow complex. These bat boxes, commonly known as “rocket boxes,” have been proven to provide artificial habitat for bats as they mimic the loose bark that bats commonly roost under during the summer months. This new design in bat boxes can be attributed to Dan Dourson and John MacGregor of the U.S. Forest Service. These structures have proven to be successful in the Daniel Boone National Forest, with as many as 85 percent of boxes on forested ridgetops receiving use.

As part of the permitting process for surface mining applications, applicants must provide fish and wildlife enhancement features such as brush piles, shallow water depressions and rock piles. The bat boxes will provide yet another wildlife enhancement option for use on reclaimed surface mining lands. Applicants visiting the Hudson Hollow complex will now be able to view the bat boxes located in the adjacent park.

This type of bat box is easy to construct with materials averaging approximately \$15. To obtain design information for these boxes, contact Richard Wahrer, Department for Surface Mining Reclamation and Enforcement, at (502) 564-2320 or contact your local U.S. Forest Service office.



Department for Surface Mining employees Richard Wahrer, Daryl Hines, Tracy Hurst and Susan Wind, raise a new bat box in the park at the Hudson Hollow complex in Frankfort.
Photo by Vicki Pettus



This publication is recyclable. Please share it with a friend.

Natural Resources and Environmental Protection Cabinet
Public Information and Education Branch
4th Floor, Capital Plaza Tower
Frankfort, KY 40601

**Presorted Standard
U.S. Postage
PAID
Permit #59
Louisville, KY**

Address Correction Requested

